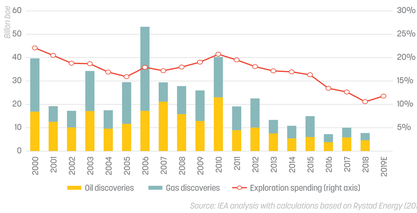
AFTER YEARS OF DECLINE, OIL AND GAS EXTRACTION IS SET TO INCREASE

Oil majors have steadily reduced exploration investment since the 2014 oil price collapse. Now exploration is ticking up again, even if the oil price isn't. Meanwhile, investment in renewables remains small among oil and gas companies.

DISCOVERIES ARE AT RECORD LOWS, BUT EXPLORATION MAY BE TURNING A CORNER...

GLOBAL CONVENTIONAL RESOURCES DISCOVERIES AND EXPLORATION SPENDING AS % OF TOTAL INVESTMENT



Source: IEA analysis with calculations based on Rystad Energy (2019)

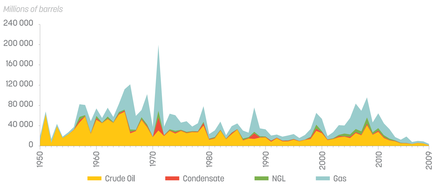
Following the 2014 collapse in global oil prices, the world's major fossil fuel companies pulled back on exploration investment. Spending in the sector halved between 2014 and 2018. Companies had already started to reduce exploration investment even before 2014, but the price collapse accelerated the trend.

Now, according to the International Energy Agency, exploration is set to increase this year for the first time since 2010.

Investment in exploration is set to rise to $60 billion in 2019, an increase of 18% from the previous year. But it will still be some time till exploration returns to its 2010 levels, partially because structural changes have decreased the rate of return on investment.

THE LONG DECLINE IN NEW OIL AND GAS DISCOVERIES

GLOBAL VOLUMES OF NEW DISCOVERIES IN OIL AND GAS

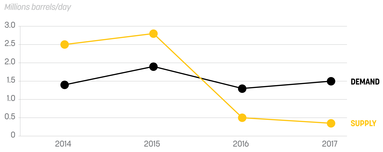


Source: Rystad Energy; Strategy& research

Less exploration has meant less discoveries. Between 2014 and 2018, the discoveries of conventional crude oil amounted on average to 5.2 billion barrels of oil equivalent (boe) per year, two-thirds lower than the average of the previous decade. The same trend was seen in gas discoveries, at 5.0 billion boe per year in the 2014-18 period versus 15.1 billion boe in the previous decade.

The rate of return for discoveries as a result of exploration investment has also dropped. On average, exploration found 8 billion barrels of commercial liquids every year in the early part of this decade. It's only delivered around 2 billion barrels in each of the three years since 2014.

GROWTH IN WORLD OIL SUPPLY AND DEMAND



Source: IEA Oil Market Report, December 2017 ; Strategy& research

The low discovery rate has alarmed market analysists because as supply decreases, demand is increasing. The oil market could be running short of oil capacity by the late-2020s. Given that it usually takes a decade for a new discovery to yield peak production, the real effect of the lack of exploration now won't be felt for several years.

Total exploration investment by oil and gas majors in 2018: €51bn

Total clean energy investment by oil and gas majors in 2018: €3.4bn

But climate campaigners say down is exactly the direction that oil and gas exploration investment should be going, considering the challenge presented by climate change.

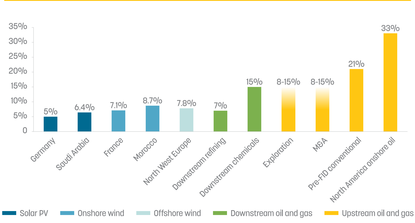
Environmentalists worry that the projected uptick in such investment is not a rational response to either market pressure or climate pressure, and lament the continued low investment in renewable energy by major oil and gas companies.

Even though it has been declining, they say investment in exploration is still too high.

According to a report by the Carbon Disclosure Project, the world's 24 largest oil and gas majors together spent only 1.3% of their 2018 budgets on clean energy.

This number is growing, however, driven mostly by investment from European oil and gas majors. It is nearly double the 0.68% of investments the group made in clean energy between 2010 and 2017.

RETURN ON INVESTMENT



Source: Wood Mackenzie

But even with declining returns, exploration still represents a higher return on investment than renewables. According to an analysis by Wood Mackenzie, exploration – along with other upstream oil and gas investments - still yields higher returns than the most promising renewables investments in different countries.

However, the analysis also concludes that renewables investment returns are competitive when compared to full cycle upstream resource renewal economics from exploration and M&A. Renewables projects also offer risk diversification for major oil and gas producers, which may be handy in an era of declining discoveries.

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Sources: IEA analysis with calculations based on Rystad Energy (2019). Strategy& research. IEA Oil Market Report, December 2017 ; Strategy& research. IEA, CDP, Wood Mackenzie.

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